

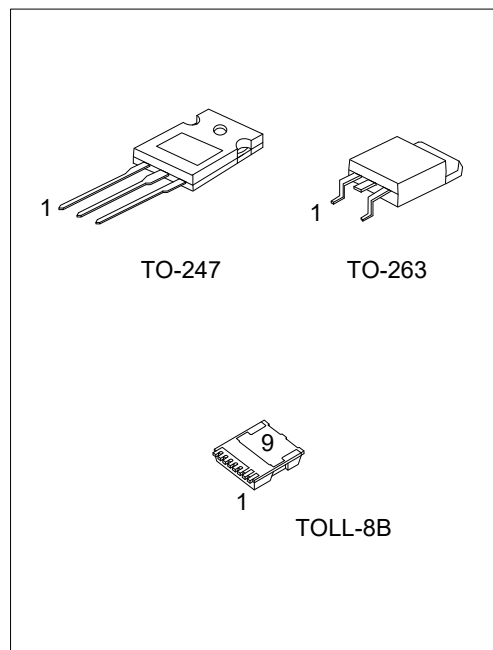
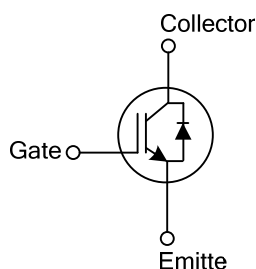
**UTG25N120-G2***Insulated Gate Bipolar Transistor***1200V TRENCH GATE
FIELD-STOP IGBT****DESCRIPTION**

The UTC **UTG25N120-G2** is an Trench Field-Stop Insulated Gate Bipolar Transistor. it uses UTC's advanced technology to provide customers with high switching speed, low saturation voltage and low switching loss, etc.

The UTC **UTG25N120-G2** is suitable for the resonant or soft switching applications.

FEATURES

- * High switching speed
- * High avalanche ruggedness
- * Low saturation voltage: $V_{CE(sat)}$, typ = 1.8V @ $I_C=25A$ ($T_C=25^\circ C$)
- * Low switching loss: E_{OFF} , typ=2.36mJ @ $I_C=25A$ ($T_C=25^\circ C$)

SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment									Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	9	
UTG25N120L-G2-T47-T	UTG25N120G-G2-T47-T	TO-247	G	C	E	-	-	-	-	-	-	Tube
UTG25N120L-G2-TQ2-T	UTG25N120G-G2-TQ2-T	TO-263	G	C	E	-	-	-	-	-	-	Tube
UTG25N120L-G2-TQ2-R	UTG25N120G-G2-TQ2-R	TO-263	G	C	E	-	-	-	-	-	-	Tape Reel
UTG25N120L-G2-T8B-R	UTG25N120G-G2-T8B-R	TOLL-8B	G	E1	E2	E2	E2	E2	E2	E2	E2	Tape Reel

Note: Pin Assignment: G: Gate C: Collector E: Emitter

UTG25N120G-G2-T47-T		(1)Packing Type	(1) T: Tube, R: Tape Reel
		(2)Package Type	(2) T47: TO-247, TQ2: TO-263, T8B: TOLL-8B
		(3)Version Code	(3) Version G2
		(4)Green Package	(4) G: Halogen Free and Lead Free, L: Lead Free

UTG25N120-G2

Insulated Gate Bipolar Transistor

MARKING

TO-247 / TO-263	TOLL-8B
UTC UTG25N120 Version Code ← Lot Code ← 1 → L: Lead Free → G: Halogen Free → Date Code	UTC UTG25N120 Version Code ← Lot Code ← 1 → L: Lead Free → G: Halogen Free → Date Code

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V_{CES}	1200	V
Gate-Emitter Voltage	V_{GES}	± 20	V
Continuous Collector Current	$T_C=25^{\circ}\text{C}$	50	A
	$T_C=100^{\circ}\text{C}$	25	A
Collector Current Pulsed (Note 1)	I_{CM}	100	A
Diode Forward Current	$T_C=25^{\circ}\text{C}$	50	A
	$T_C=100^{\circ}\text{C}$	25	A
Short Circuit Withstand Time $V_{GE} = 15\text{V}$, $V_{CC} \leq 200\text{V}$ Allowed number of short circuits < 1000 Time between short circuits: $\geq 1.0\text{s}$ $T_{VJ} = 25^{\circ}\text{C}$	t_{SC}	10	μs
Power Dissipation ($T_C=25^{\circ}\text{C}$)	TO-247	260	W
	TO-263	110	W
	TOLL-8B	170	W
Operating Junction Temperature	T_J	$-40 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Notes: 1. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Absolute maximum ratings are those values beyond which the device could be permanently damaged.

2. Pulse width limited by maximum junction temperature.

■ THERMAL DATA

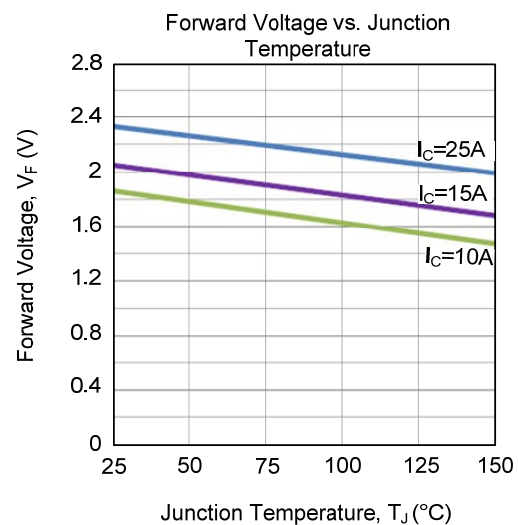
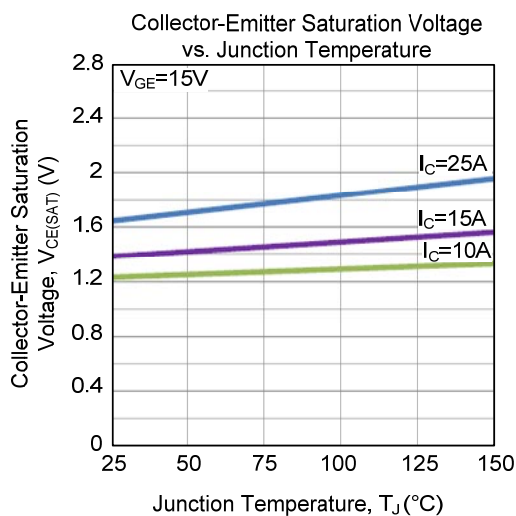
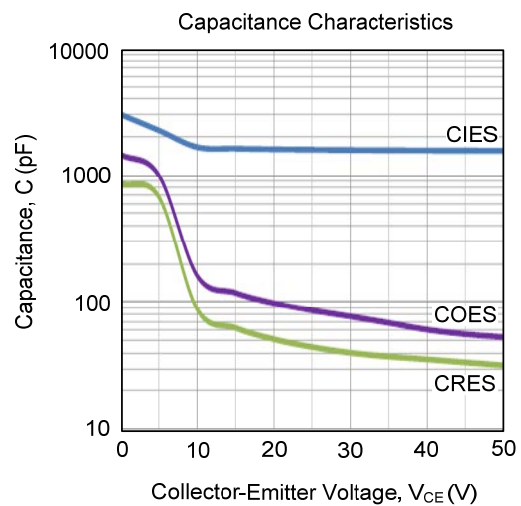
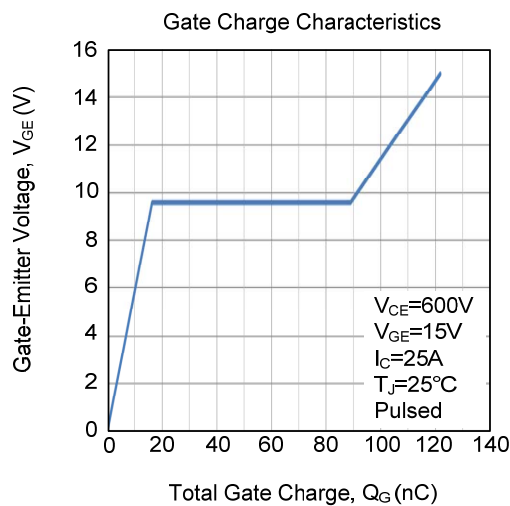
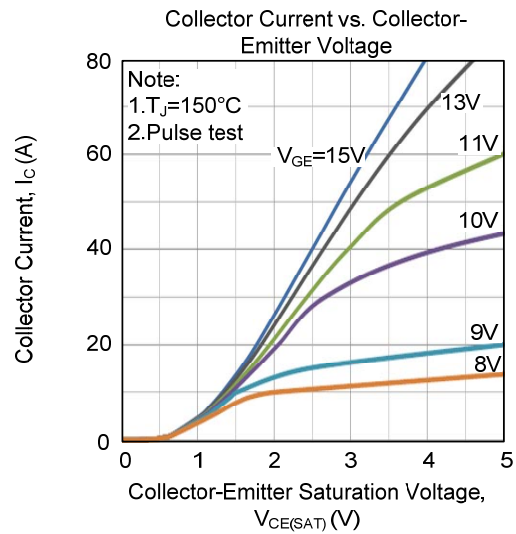
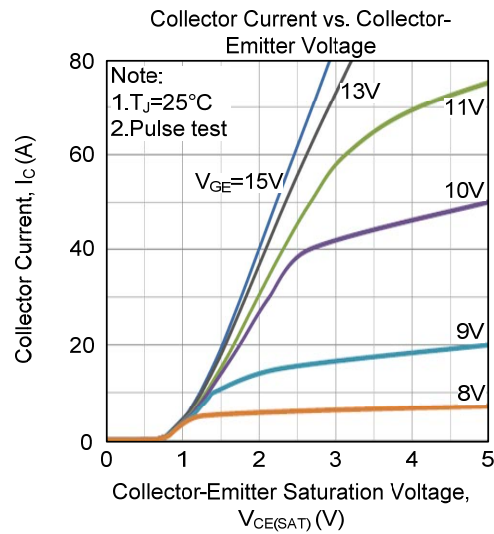
PARAMETER	SYMBOL	RATING	UNIT
Junction to Case	TO-247	0.48	$^{\circ}\text{C/W}$
	TO-263	1.13	$^{\circ}\text{C/W}$
	TOLL-8B	0.73 (Note)	$^{\circ}\text{C/W}$

Note: Device mounted on FR-4 substrate Pc board, 2oz copper, with 1inch square copper plate.

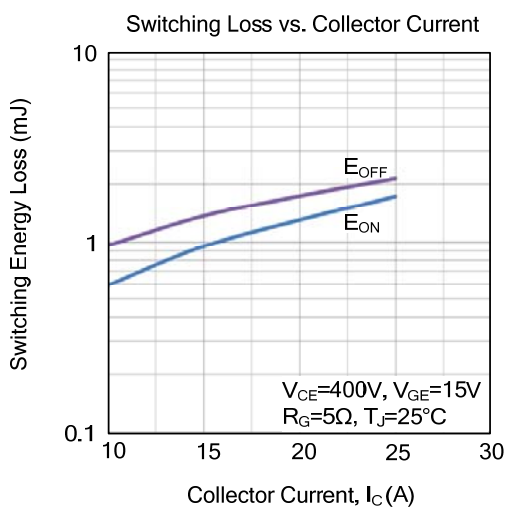
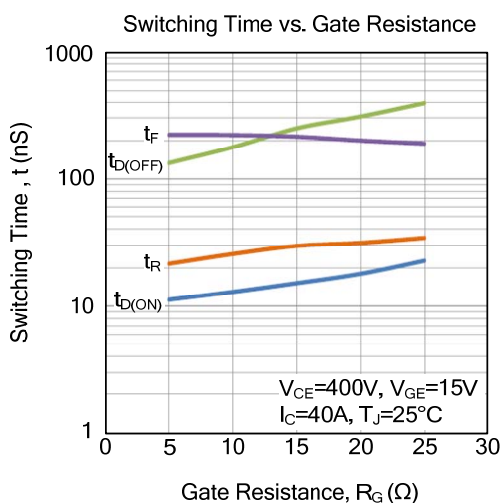
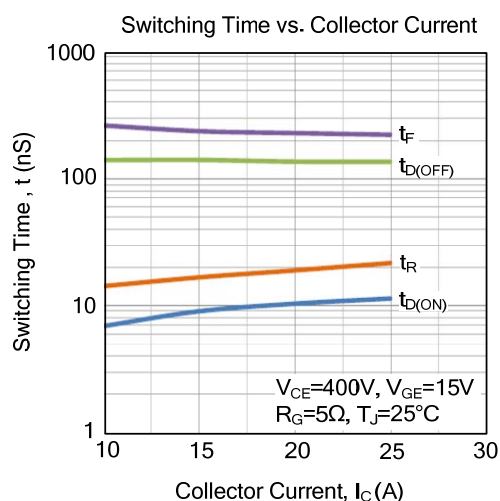
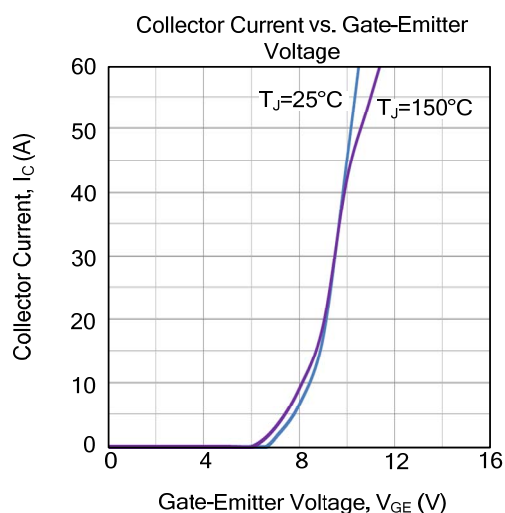
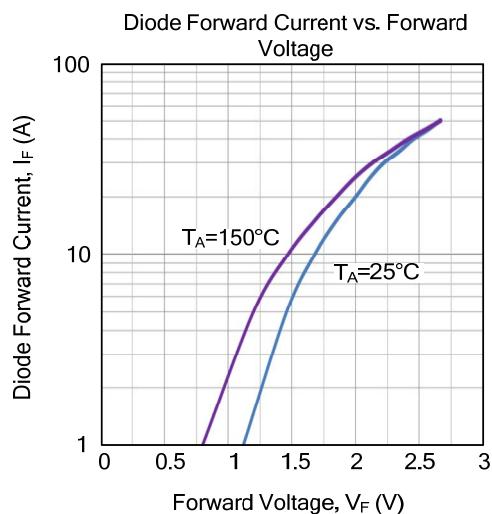
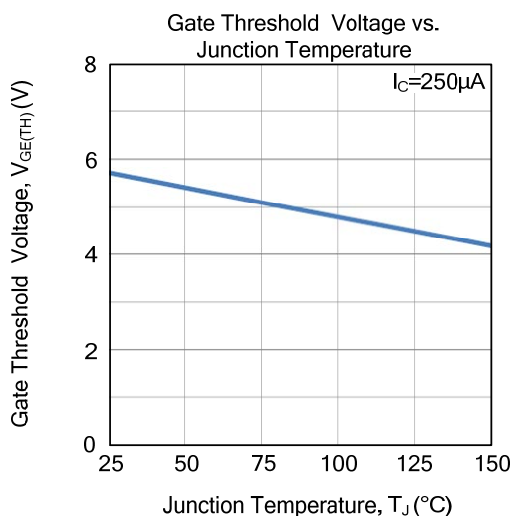
■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Off Characteristics						
Collector-Emitter Breakdown Voltage	BV _{CES}		1200			V
Collector Cut-Off Current	I _{CES}	V _{CE} =V _{CES} , V _{GE} =0V			5	μA
G-E Leakage Current	I _{GES}	V _{GE} =V _{GES} , V _{CE} = 0V			±100	nA
On Characteristics						
Gate to Emitter Threshold Voltage	V _{GE(TH)}	I _C =250μA, V _{CE} =V _{GE}	4.5		7.5	V
Collector to Emitter Saturation Voltage	V _{CE(SAT)}	I _C =25A, V _{GE} =15V		1.8	2.1	V
		I _C =25A, V _{GE} =15V, T _C =125°C		2.2		V
Dynamic Characteristics						
Input Capacitance	C _{IES}	V _{CE} =25V, V _{GE} =0V, f=1MHz		1370		pF
Output Capacitance	C _{OES}			72.8		pF
Reverse Transfer Capacitance	C _{RES}			43.6		pF
Switching Characteristics						
Total Gate Charge	Q _G	V _{CE} =600V, I _C =25A, V _{GE} =15V		121.7		nC
Gate-Emitter Charge	Q _{GE}			15.6		nC
Gate-Collector Charge	Q _{GC}			85.6		nC
Turn-On Delay Time	t _{DON})	V _{CC} =600V, I _C =25A, R _G =5Ω, V _{GE} =0~15V, L=500uH		16.7		ns
Rise Time	t _{tr}			28.4		ns
Turn-Off Delay Time	t _{DOFF})			132.3		ns
Fall Time	t _f			222		ns
Turn-On Switching Loss	E _{ON}			2.11		mJ
Turn-Off Switching Loss	E _{OFF}			2.36		mJ
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Forward Voltage Drop	V _{FM}	I _F =25A			3.5	V
Reverse Recovery Time	t _{rr}	I _F =25A, dI/dt=100A/μS		50		ns
Reverse Recovery Charge	Q _{rr}			0.94		μC

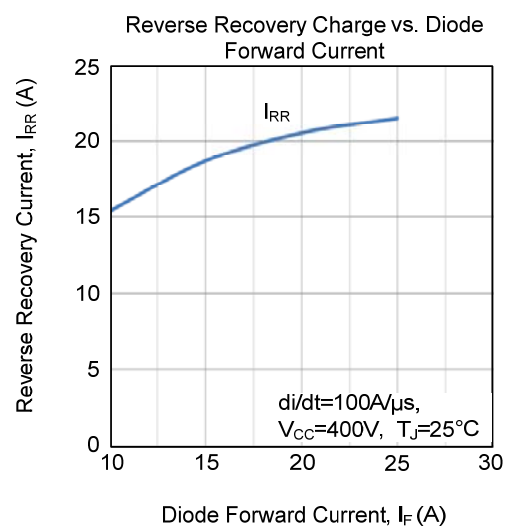
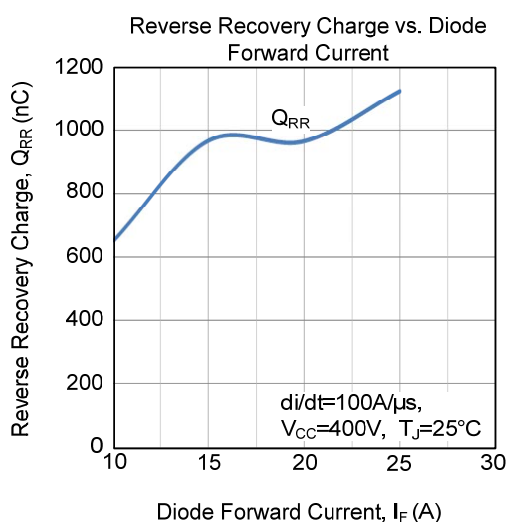
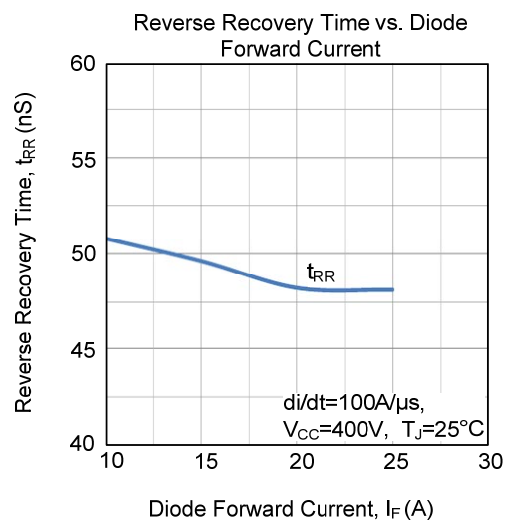
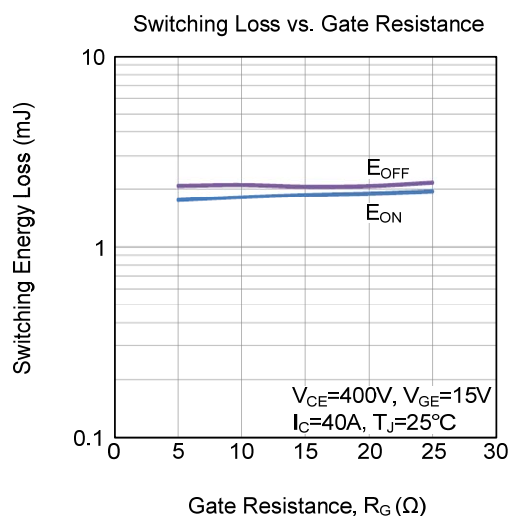
■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.